

Remarks:

This application has been reviewed carefully in view of the Office Action mailed October 30, 2003 ("the Office Action"). In the Office Action, claims 1, 6-7, 11-13 and
5 16-17 were rejected under 35 U.S.C. § 102(e), as allegedly anticipated by U.S. Patent No. 6,061,562, to Martin et al. Claims 2-3 were rejected under 35 U.S.C. § 103(a), as allegedly unpatentable over the Martin et al. patent in view of U.S. Patent No. 6,198,921, to Youssefzadeh et al. Claims 18, 23-25 were rejected under 35 U.S.C. § 103(a), as allegedly unpatentable over the Martin et al. patent in view of U.S. Patent Pub. No.
10 US2002/0072361A1, to Knoblach et al. Claims 21-22 were rejected under 35 U.S.C. § 103(a), as allegedly unpatentable over the Martin et al. patent in view of U.S. Patent No. 6,075,483, to Gross. Claims 28-29 were rejected under 35 U.S.C. § 103(a), as allegedly unpatentable over the Martin et al. patent in view of Knoblach et al., and further in view of Gross. And finally, claims 4-5, 8-10, 14-15, 19-20 and 26-27 were rejected
15 under 35 U.S.C. § 103(a), as allegedly unpatentable over the Martin et al. patent in view of U.S. Patent No. 5,810,284, to Hibbs et al.

The above-described rejections are addressed in the following sections:

20 **A. CLAIMS 6-10**

Claims 6-10 were all rejected under 35 U.S.C. § 102(e) or § 103(a). These rejections all referenced Martin et al. as reciting some or all of the features of the claims.

25 As amended, independent claim 6 now recites:

maintaining the antenna in a generally **fixed orientation**; and
flying the suborbital platform in a pattern that **maintains** the suborbital
platform **within the beamwidth** of the signal. (emphasis added)

30 Neither Martin et al. nor the other cited references disclose a suborbital platform flying such that it remains within the beamwidth of an antenna of generally fixed

orientation. The Martin et al., aircraft flies in a five to eight mile (diameter) circle (col. 3, lines. 61-64). A gimballed gateway antenna (col. 4, lines 56-60), and actuated customer or business premises equipment antennas (col. 10, lines 35-37) provide tracking (see, e.g., col. 6, lines 31-35) to follow the motion of the aircraft.

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A typical advantage to flying an aircraft within a tight airspace entirely within the beamwidth of the ground antenna's signal, is that it simplifies the ground equipment required to maintain communications. For example, tracking equipment to actively track the communication platform and maintain a data link is not generally necessary, leading to reduced cost to build and maintain the ground antenna system, and potentially leading to higher reliability of the data link service. This tight stationkeeping ability can also reduce the need for taller antennas, and allow for more convenient antenna location with clearance of ground obstacles such as trees.

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Dependent claims 7-10 depend from claim 6.

For these reasons, the cited references fail to anticipate or make obvious the invention of claims 6-10. Accordingly, the rejections of claims 6-10 under 35 U.S.C. § 102(e) are now improper, and Applicants respectfully request they be withdrawn.

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B. CLAIMS 17-20 AND 22

Claims 17-20 and 22 were all rejected under 35 U.S.C. § 102(e) or § 103(a). These rejections all referenced Martin et al. as reciting some or all of the features of the claims.

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As amended, independent claim 17 now recites:

wherein each terminal has a terminal antenna configured for carrying the communication signal, the terminal antenna being configured such that the **airplane's entire flight station** falls within the terminal antenna's beamwidth **without any adjustment of the terminal antenna's aim.** (emphasis added)

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Neither Martin et al. nor the other cited references disclose a suborbital platform flying such that it remains within the beamwidth of an antenna without adjustment of the antenna's aim. As noted above, the Martin et al. antennas include tracking mechanisms to follow the motion of the aircraft through its flight area.

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Dependent claims 18-20 and 22 depend from claim 17.

For these reasons, the cited references fail to anticipate or make obvious the invention of claims 17-20 and 22. Accordingly, the rejections of claims 17-20 and 22 under 35 U.S.C. § 102(e) are now improper, and Applicants respectfully request they be withdrawn.

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C. CLAIMS 11-12

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Claims 11-12 were rejected under 35 U.S.C. § 102(e), as allegedly anticipated by U.S. Patent No. 6,061,562, to Martin et al.

As amended, independent claim 11 now recites:

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wherein the downward-pointing antenna and the upward-pointing antenna are aimed such that they **delimit a geostationary region** of airspace that is within both signal beam-widths; and

a suborbital platform configured to **fly a pattern entirely within** the delimited region of airspace. (emphasis added)

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Neither Martin et al. nor the other cited references disclose a suborbital platform flying such that it remains within a geostationary region that is delimited by upward- and downward-pointing antenna beamwidths. As discussed above, the Martin et al. aircraft flies in a five to eight mile (diameter) circle (col. 3, lines. 61-64). Gimballed gateway antennas and actuated customer or business premises equipment antennas track the Martin et al. aircraft within the circle, rather than delimiting the entire circle by upward- and downward-pointing antenna beamwidths.

Dependent claim 12 depends from claim 11.

For these reasons, Martin et al. fails to anticipate the invention of claims 11-12. Accordingly, the rejections of claims 11-12 under 35 U.S.C. § 102(e) are now improper, and Applicants respectfully request they be withdrawn.

D. CLAIMS 13-16

Claims 13-16 were rejected under 35 U.S.C. § 102(e) or § 103(a). These rejections all referenced Martin et al. as reciting some or all of the features of the claims.

As amended, independent claim 13 now recites:

a suborbital platform maintained at a non-equatorial latitude that **prevents the ground station from being within the beamwidth** of communication signals transmitted by the spacecraft toward the suborbital platform, and that prevents the spacecraft from being within the beamwidth of communication signals transmitted by the ground station toward the suborbital platform;

wherein the ground station maintains both a direct communications signal and an indirect communications signal with the spacecraft, the indirect communications signal being directed to the suborbital platform which relays the signal to the spacecraft; and

wherein the **direct and indirect communications signals from the ground station use the same wavelengths.** (emphasis added)

Neither Martin et al. nor the other cited references disclose a suborbital platform used to create dual communications pathways between a ground station and a satellite such that it allows frequency reuse.

Dependent claims 14-16 depend from claim 13.

For these reasons, the cited references fail to anticipate or make obvious the invention of claims 13-16. Accordingly, the rejections of claims 13-16 are now improper, and Applicants respectfully request they be withdrawn.

5 **E. CLAIMS 23 AND 26-29**

Claims 23 and 26-29 were rejected under 35 U.S.C. § 103(a) over various references, all including Martin et al. as reciting some or all of the features of the claims.

10 As amended, independent claim 23 now recites:

... a first airplane and a second airplane, each airplane flying within a flight station;

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15 wherein the networks of the first airplane and the second airplane are configured to communicate with terminals in one or more of the same communication cells **using the same wavelengths;**

...

20 wherein each airplane's respective station is **outside of the oriented beamwidths of the terminal antennas that are in communication with other airplanes.**

Neither Martin et al. nor the other cited references disclose a plurality of airplanes used to create dual communications pathways to a single communication cell and thereby allow frequency reuse.

25 Dependent claims 26-29 depend from claim 23.

For these reasons, the cited references fail to anticipate or make obvious the invention of claims 23 and 26-29. Accordingly, the rejections of claims 23 and 26-29 are now improper, and Applicants respectfully request they be withdrawn.

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F. REQUEST FOR INTERVIEW

In light of the present amendments and remarks, Applicants believe that the claims are now in condition for allowance. Nevertheless, Applicants request a telephonic
5 interview to try and efficiently resolve any concerns of the Examiner. Naturally, if all the claims are allowed, Applicants will forgo the interview.

G. MISSING REFERENCE

10 On page 2, the Office Action referred to a McKenna et al. reference that was made of record and not relied upon. Unfortunately, Applicants did not receive a copy of McKenna et al., or a References Cited form referencing McKenna et al. Unless the reference to McKenna et al. was a typo, Applicants respectfully request that a copy of McKenna et al. be provided.

H. CONCLUSION

In view of the foregoing, Applicants respectfully request that a timely Notice of Allowance be issued in this case.

20 Respectfully submitted,

COX et al.

25 By: 

John A. Griecci

Registration No. 39,694

30 For: The Law Office of John A. Griecci

703 Pier Avenue, Suite B #657
Hermosa Beach, CA 90254
35 (310) 376-6527